

WHAT IS CLAIMED IS:

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1. A method for compression of compound images, the method comprising:
    - a) determining a classification for a current pixel based upon its causal neighbors;
    - b) coding the pixel using conditional coding according to a mode determined by the classification, producing a symbol for the pixel; and
    - c) mapping the symbol to an output bit stream.
  2. The method of claim 1, wherein determining the classification for a current pixel further comprises:
    - a) obtaining a number of distinct values for the causal neighbors by no more than four logical comparisons; and
    - b) determining the classification according to the number of distinct values appearing in the causal neighbors.
  3. The method of claim 1, wherein the classification of the current pixel is class 0, and the method further comprises:
    - a) determining whether the current pixel is equal to its causal neighbors;
    - b) if the current pixel is equal to its causal neighbors, encoding a "Yes" symbol by conditional coding; and
    - c) if the current pixel is not equal to its causal neighbors, encoding a "No" symbol by conditional coding and coding the pixel according to a continuous mode.
  4. The method of claim 1, wherein the classification of the current pixel is class 1 and the method further comprises:
    - a) determining whether the current pixel is equal to one of either the local minimum or the local maximum;
    - b) if the current pixel is equal to the local minimum encoding a "Yes" symbol and a binary symbol denoting that the current pixel is equal to the local minimum by conditional coding;
    - c) if the current pixel is equal to the local maximum encoding a "Yes" symbol and a binary symbol denoting that the current pixel is equal to the local maximum by conditional coding;
    - d) if the current pixel is not equal to one of either the local minimum or the local maximum, encoding a "No" symbol by conditional coding and coding the pixel according to a continuous mode.

5. The method of claim 1, wherein the mode is a continuous mode and the method further comprises:

- a) obtaining a prediction of the current pixel from the four causal neighbors;
- b) determining a prediction residue from the prediction of the current pixel; and
- 5 c) mapping the prediction residue to an output, wherein the mapping is performed by first representing a symbol by a binary expansion tree and then encoding node decisions by conditional coding.

6. The method of claim 1, wherein conditional coding further comprises:

- a) obtaining a context model for binary and ternary symbols from the causal neighbors and coding a current symbol according to the context model;
- 10 b) obtaining a quantized context model for continuous symbols from the causal neighbors and coding a current symbol according to the context model; and
- c) representing non-binary symbols using a binary expansion tree coding a symbol by a series of decision nodes traversing the expansion tree, wherein coding of the decision node is always conditioned upon a parent in the binary expansion tree.

7. The method of claim 4, wherein the prediction of the current pixel further comprises using a median edge detection predictor.

8. The method of claim 6, wherein coding of binary symbols is accomplished by an adaptive binary arithmetic coder.

9. An article, including machine-readable instructions that, when executed, cause the machine to:

- a) determine a classification for a current pixel based upon its causal neighbors;
- b) code the pixel according to a mode determined by the classification, producing a symbol for the pixel; and
- 25 c) map the symbol to an output bit stream.